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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TERESA H. MENG, DAVID SU, and MASOUD ZARGARI

Appeal 2009-003,292
Application 09/416,098¹
Technology Center 2600

Decided: August 17, 2009

Before KENNETH W. HAIRSTON, ROBERT E. NAPPI,
and MARC S. HOFF, *Administrative Patent Judges*.

HOFF, *Administrative Patent Judge*.

DECISION ON APPEAL

¹ The real party in interest is Atheros Communications, Inc.

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134 from a Final Rejection of claims 1, 4, 5, 8, 9, 15, 18, 19, 22, 23, 29, 31, 34, and 35². We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

Appellants' invention concerns a digital communication system composed of at least two transceivers, one serving as a transmitter and the other as a receiver, wherein the receiver detects either carrier frequency offset or sampling frequency offset of the incoming signal and the transmitter corrects carrier frequency offset or sampling frequency offset (Figs. 1-5, Spec 1:7-10, 7:5-17, 8:8-12, 10:3-9, 10:16-19, and 11:16-21). Appellants' digital communications system includes at least one remote unit 100 that includes a receiver that may either detect carrier frequency offset or sampling frequency offset (Fig. 1, 2, and 4, Spec. 7:13-17, 8: 8-11, and 10:16-19). Using the carrier offset information detected by the receiver, the transmitter digitally shifts the signal's frequency to correct for carrier frequency offset (Fig. 3, Spec. 10:4-9). Likewise, using the timing offset information detected by the receiver, the transmitter may perform sampling rate conversion on the data to be transmitted in an effort to correct sampling frequency offset (Fig. 5, Spec. 11:10-11, and 16-21).

Claim 1 is exemplary:

1. A device adapted to be used in a communication system, the communication system using one of OFDM, NBFDM, DMT, FDMA and TDMA, comprising:

² Claims 2, 3, 6, 7, 10-14, 16, 17, 20, 21, 24-28, 30, 32, and 33 have been canceled.

a first transceiver unit operable to communicate in continuous bi-directional manner for the direct exchange of information with a second transceiver unit using a common carrier frequency and a common sampling frequency;

means for detecting responsive to a continuous comparison of received and detected signals comparative offsets between respective common frequency references used for the carrier and sampling frequencies locally by the first and second transceiver units in at least one first signal transmitted by the first transceiver unit and received by the second transceiver unit disposed remotely therefrom;

means for adjusting the common carrier and sampling frequencies in accordance with the offsets detected responsive to the continuous comparison of received and detected signals in at least one second signal to be transmitted by the second transceiver unit and to be received by the first transceiver unit to correct for errors in the carrier frequency and sampling frequency references used locally at the first transceiver unit, so that the effects of the offsets to be perceived by the first transceiver unit will be substantially reduced in preemptive manner, the second signal to be transmitted being thereby adjusted to be in substantial frequency lock with the common carrier frequency reference of the first transceiver unit.

There is no prior art relied upon by the Examiner in rejecting the claims.

Claims 1, 4, 5, 8, 9, 15, 18, 19, 22, 23, 29, 31, 34, and 35 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description and enablement requirements.

Claims 1, 4, 5, 8, 9, 15, 18, 19, 22, 23, 29, 31, 34, and 35 stand rejected under 35 U.S.C. § 112, second paragraph, as failing to set forth the subject matter which the Applicants regard as their invention.

Rather than repeat the arguments of Appellants or the Examiner, we make reference to the Appeal Brief (filed April 17, 2008) and the Examiner's Answer (mailed July 9, 2008) for their respective details.

ISSUES

Appellants contend that within the entire original Specification there are several references to a digital communication system that corrects both carrier frequency offset and sampling frequency offset (App. Br. 19 and 21, FF 8). Appellants contend that the “ability to combine the disclosed circuits for individually correcting carrier frequency offset in the data transmission and correcting sampling frequency offset in the data transmission (embodiments 1 and 2, for example) in a single transceiver in order to practice the ‘invention’, is *well within* the capability of one with ordinary skill in the art” (App. Br. 19 emphasis added). Thereby, the Appellants have disclosed an adequate description of the invention in the Specification to enable one skilled in the art to make or use the invention (App. Br. 19).

The Examiner finds that the claims implicitly lack enablement because the Specification fails to *describe how* the “carrier frequency offset and sampling frequency offset” are corrected *simultaneously*, as independent claims 1, 15, 29, 31, 34, and 35 require (Ans. 5- 6). In the Examiner’s view, the absence of support for the carrier frequency offset and sampling frequency offset correction occurring together at the same time in the Specification or in the drawings indicates that Appellants did not have possession of the invention as of the filing date (Ans. 3 and 5).

Appellants’ contentions present us with the following two issues:

1. Did Appellants show that the Examiner erred in finding that the original Specification fails to describe how the “carrier frequency offset and sampling frequency offset” are corrected simultaneously?

2. Did Appellants show that the Examiner erred in finding that the claims are indefinite for failing to particularly point out and distinctly claim the subject matter that Appellants regard as their invention?

FINDINGS OF FACT

The following Findings of Fact (FF) are shown by a preponderance of the evidence.

The Invention

1. According to Appellants, the invention concerns a digital communication system composed of at least two transceivers, one serving as a transmitter and the other as a receiver, wherein the receiver detects either the carrier frequency offset or the sampling frequency offset of the incoming signal and the transmitter corrects the carrier frequency offset or the sampling frequency offset (Figs. 1-5, Spec 1:7-10, 7:5-17, 8:8-12, 10:3-9, 10:16-19, and 11:16-21). Specifically, the Specification discloses a first embodiment of a receiver within remote unit 100 that detects carrier frequency offset and a second embodiment of a receiver within remote unit 100 that detects sampling frequency offset (Figs. 2 and 4, Spec. 8:8-9 and 10:16-17).

2. The Specification discloses that the digital communication system includes a base station and multiple remote units 100, wherein each remote unit 100 corrects the frequency offset during transmission, creating a low IF modulation and interpolation effect (Fig. 1, Spec. 7:13-17).

3. The Specification discloses using a common carrier frequency and a common sampling frequency (Fig. 1, Spec. 5:10-17, 7:5-8, and 17:20-18:4).

4. The Specification discloses adjusting the common carrier and sampling frequencies (Spec. 10:3-9, 11:18-12:6, 12:22-13:10, and 17:15-19).

5. The Specification discloses correcting errors in the carrier frequency and sampling frequency (Spec. 10:3-9, 11:18-12:6, 12:22-13:10, and 17:15-19).

6. The Specification discloses a frequency lock loop and a delay lock loop (Spec. 8:8-15, 11:10-11, 12:18-22, 14:14-15, 14:19-21, 15:18-20, and 16:2-5).

7. The Specification discloses a frequency shift block and a timing acquisition unit (Spec. 10:3-9, 11:18-12:6, 12:22-13:10, and 17:15-19).

8. The Specification teaches both carrier frequency offset correction and sampling frequency offset correction (Abstract, Spec. 1:7-10, 3:21-4:4, 18:10-13, and 18:16-19).

PRINCIPLES OF LAW

Under the written description requirement of 35 U.S.C. § 112, the disclosure of the application relied upon must reasonably convey to one of ordinary skill in the art that, as of the filing date of the application, the inventor had possession of the later-claimed subject matter. *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563 (Fed. Cir. 1991). "One shows that one is 'in possession' of *the invention* by describing *the invention*, with all its claimed limitations, not that which makes it obvious." *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997) (emphasis in original).

Although "the meaning of terms, phrases, or diagrams in a disclosure is to be explained or interpreted from the vantage point of one skilled in the art, all the limitations must appear in the specification." *Id.* The

Specification need not describe the claimed subject matter in exactly the same terms as used in the claims, but it must contain an equivalent description of the claimed subject matter. *Id.*

Regarding the enablement requirement of 35 U.S.C. § 112, “[t]he test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation.” *United States v. Telectronics, Inc.*, 857 F.2d 778, 785 (Fed. Cir. 1988).

“[A] patent disclosure need not enable information within the knowledge of an ordinarily skilled artisan. Thus, a patentee preferably omits from the disclosure any routine technology that is well known at the time of application.” *Chiron Corp. v. Genentech, Inc.*, 363 F.3d 1247, 1254 (Fed. Cir. 2004).

Any analysis of whether a particular claim is supported by the disclosure in an application requires a determination of whether that disclosure, when filed, contained sufficient information regarding the subject matter of the claims as to enable one skilled in the pertinent art to make and use the claimed invention. The Examiner must also consider whether the scope of enablement provided to one of ordinary skill in the art by the disclosure is commensurate with the scope of protection sought by the claims. *In re Moore*, 439 F.2d 1232 (CCPA 1971).

The test for definiteness under 35 U.S.C. § 112, second paragraph, is “whether those skilled in the art would understand what is claimed when the claim is read in light of the specification.” *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1576 (Fed. Cir. 1986) (citations

omitted). Claims must “particularly point out and distinctly claim the subject matter which the applicant regards as his invention.” 35 U.S.C. § 112, ¶ 2. However, “[o]nly claims not amenable to construction or insolubly ambiguous are indefinite....A claim term is not indefinite just because it poses a difficult issue of claim construction.” *Star Scientific, Inc. v. R.J. Reynolds Tobacco Co.*, 537 F.3d 1357, 1371 (Fed. Cir. 2008) (internal citations and quotation marks omitted). “Thus, the definiteness of claim terms depends on whether those terms can be given any reasonable meaning.” *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1347 (Fed. Cir. 2005).

ANALYSIS

35 U.S.C. § 112 rejection, first paragraph

Appellants contend that claims 1, 4, 5, 8, 9, 15, 18, 19, 22, 23, 29, 31, 34, and 35 do not fail to comply with the written description requirement under 35 U.S.C. § 112, first paragraph, since the claims contain only subject matter that was described in the originally filed Specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors had possession of the claimed invention at the time the subject patent application was filed (App. Br. 24). Further, Appellants contend that the claimed subject matter of “using a common carrier frequency and a common sampling frequency” (FF 3), “adjusting the common carrier and sampling frequencies” (FF 4), “correct for errors in the carrier frequency and sampling frequency” (FF 5), “a frequency lock loop and a delay lock loop” (FF 6), and “a frequency shift block and a timing acquisition unit” (FF 7) are found in

the original disclosure and therefore should not be considered new matter (App. Br. 16 and 17).

Specifically, Appellants contend that the originally filed Specification describes the invention as a combination of carrier and sampling frequency offset in the embodiment of the digital communications system shown in Figure 1 of the disclosure (App. Br. 17, FF 1). Appellants contend that the Specification indicates that Figure 1 is the preferred embodiment that “explicitly describes the invention as including both carrier frequency offset correction and sampling frequency offset correction” since each remote unit 100 corrects for offsets during transmission, “creating a low IF modulation and interpolation effect, before sending the signal to the analog front end circuitry” (App. Br. 17 and 18, FF 2). Appellants argue that “creating a low IF modulation” implies that there is carrier frequency offset and that “creating a low interpolation effect” implies that there is sampling frequency offset correction (App. Br. 18). Appellants argue that the Examiner’s characterization of the preferred embodiment is in error (App. Br. 17). Appellants note that Figure 1 is the preferred embodiment, rather than Figure 2 or Figure 4 (App. Br. 18-19). Appellants contend that

The ability to combine the disclosed circuits for individually correcting carrier frequency offset in the data transmission and correcting sampling frequency offset in the data transmission (embodiments 1 and 2, for example) in a single transceiver in order to practice the ‘invention’, is *well within* the capability of one with ordinary skill in the art

(App. Br. 19, emphasis added). Further, Appellants argue that there is nothing in the disclosure that explicitly limits the invention to be just one embodiment or the other (App. Br. 20). Moreover, Appellants contend that

the term "embodiment" has no implicit relationship to mutual exclusivity and such relationship cannot be arbitrarily read into the term (App. Br. 21). Finally, Appellants contend that throughout the entire original Specification there are several references to both carrier frequency offset correction and sampling frequency offset correction (App. Br. 19 and 21, FF 8, and Abstract).

The Examiner finds that claims 1, 4, 5, 8, 9, 15, 18, 19, 22, 23, 29, 31, 34, and 35 fail to comply with the written description requirement under 35 U.S.C. § 112, first paragraph, since the claim limitations of "using a common carrier frequency and a common sampling frequency," "adjusting the common carrier and sampling frequencies," "correct for errors in the carrier frequency and sampling frequency," "a frequency lock loop and a delay lock loop," and "a frequency shift block and a timing acquisition unit" were not found in the original disclosure and therefore are considered new matter (Ans. 3).

The Examiner finds further that claims 1, 4, 5, 8, 9, 15, 18, 19, 22, 23, 29, 31, 34, and 35 implicitly lack enablement because the Specification fails to *describe how* the "carrier frequency offset and sampling frequency offset" are corrected together as independent claims 1, 15, 29, 31, 34, and 35 require (Ans. 6). In the Examiner's view, the absence of support for the carrier frequency offset and sampling frequency offset correction occurring together at the same time in the Specification or in the drawings indicates that Appellants did not have possession of the invention as of the filing date (Ans. 3 and 5).

Although the Examiner finds both a failure to meet the written description and enablement requirements, we find rather that the claims do

meet the written description requirement, but do not meet the enablement requirement under 35 U. S. C. 112, first paragraph. Specifically, in order to satisfy the written description requirement, one must show "that one is 'in possession' of *the invention* by describing *the invention*, with all its claimed limitations." *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997). We find that the Specification describes the claimed limitations. We agree with the Examiner, however, that the absence of support for the carrier frequency offset and sampling frequency offset correction *occurring together at the same time* in the Specification or in the drawings indicates that Appellants have not met the enablement requirement (Ans. 3 and 5). We did not find any disclosure in the Specification or the drawings of *how* these could be implemented together other than that the remote unit 100 may contain a receiver that *either* corrects for carrier frequency offset *or* sampling frequency offset but not *both, simultaneously*.

Therefore, we do not find error in the Examiner's rejection of claims 1, 4, 5, 8, 9, 15, 18, 19, 22, 23, 29, 31, 34, and 35 under 35 U.S.C. § 112, first paragraph.

35 U.S.C. § 112 rejection, second paragraph

With regard to claim 1, the Examiner finds that the original Specification clearly sets forth a first embodiment for digital correction of carrier frequency offset (Ans. 4, FF 1) and a second embodiment for sampling frequency offset (Ans. 4, FF 1). Hence, the Examiner finds that claim 1 is indefinite because it is improper to combine these two different embodiments together in a single claim (Ans. 4).

Appellants argue that the claimed carrier frequency offset correction and sampling frequency offset correction are explicitly shown in the Specification and drawings (App. Br. 24-25).

When determining whether a claim is indefinite, the Examiner must look to the Specification to determine whether the terms of the claim can be given any reasonable meaning by those skilled in the art “when the claim is read in light of the Specification” *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1576 (Fed. Cir. 1986) (citations omitted). The Examiner must find ambiguity between the claimed features and that which is disclosed in the Specification to come to a conclusion of indefiniteness. We agree with the Appellants. We do not find any ambiguity in the claim language when read in light of the Specification and thus, we do not agree with the Examiner’s position.

Therefore, because Appellants have shown error in the Examiner’s rejection of claims 1, 4, 5, 8, 9, 15, 18, 19, 22, 23, 29, 31, 34, and 35 under 35 U.S.C. § 112, second paragraph, we hereby reverse the Examiner’s rejection.

CONCLUSIONS OF LAW

Appellants have not shown that the Examiner erred in finding that the original Specification fails to describe how the “carrier frequency offset and sampling frequency offset” are corrected simultaneously.

Appellants have shown that the Examiner erred in finding that the claims are indefinite for failing to particularly point out and distinctly claim the subject matter which the Appellants regards as their invention.

ORDER

The Examiner's rejection of claims 1, 4, 5, 8, 9, 15, 18, 19, 22, 23, 29, 31, 34, and 35 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

ELD

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